



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/812,032

03/30/2004

Hiroataka Sato

900-494

1422

23117 7590 10/07/2008
NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER

TRINH, THANH TRUC

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

10/07/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/812,032	Applicant(s) SATO ET AL.	
	Examiner THANH-TRUC TRINH	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,6-9,13,15,16 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3,6-9,13,15,16 and 18-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/30/08, 8/26/08</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remarks

1. The amendment filed 6/20/2008 does not place the application in condition for allowance.
2. Previous rejections of claims 3-4, 6-9 and 13-18 are rejections are withdrawn due to Applicant's amendment.
3. Claims 3, 6-9, 13, 15-16, 18-20 are pending in this application.

Specification

4. The amendment filed 6/20/2008 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:

Amendment of the paragraph beginning at page 16 line 7 and continuing to page 16 line 17, "an extent of the rib facilitates adjustable positioning of the solar cell unit in the lateral direction without interference with a rib of an adjacent solar cell unit" is a new matter. There is no portion in the originally filed disclosure describing such feature. Instead the original disclosure states that the width of the gaps between solar cell units is adjustable (See page 4 lines 14-23 and page 19 lines 8-13 of the original disclosure), which is absolutely not the same as "a extent of the rib facilitates adjustable positioning of the solar cell unit in the lateral direction without interference with a rib of an adjacent solar cell unit." Applicant's argument is not deemed to be persuasive and does not

Art Unit: 1795

provide an indication that there is no new matter introduced into the disclosure. The fact that pointing to the problem of having too great height of the drip rib does not demonstrate that the inventor had possession of a solution such as using an extent of the rib to facilitate adjustable positioning of the solar cell unit in the lateral direction without interference with a rib of an adjacent solar unit.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 19-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 19 and 20 recite the limitations “wherein extent of the extending downwardly from the planar projection facilitates adjustable positioning of the solar cell unit in the lateral direction without interference with a rib of adjacent solar cell unit” in lines 13-16 of claim 19, and “an extent of the rib extending downwardly from the planar projection of the first solar cell unit facilitating adjustable positioning of the solar cell unit in the lateral direction without interference with a rib of an adjacent solar cell unit” in

lines 19-23 of claim 20. There is no support for these limitation in the specification originally filed. Instead the disclosure indicates the width of the gaps between solar cell units is adjustable (See page 4 lines 14-23 and page 19 lines 8-13 of the original disclosure). There is no portion of the originally filed disclosure describing the above limitations.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
7. Claims 3, 6-7, 9, 16 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Tourneux (US Patent 4336413) in view of Bonn (DE 19521098)

As seen in Figures 1, 2 and 6A, Tourneux teaches a solar cell unit comprising a solar cell module (including solar cells 11 and laminating 12 as seen in Figure 1); a module frame (including frame pieces 21, 22, 23 and 24) provided around the solar cell

Art Unit: 1795

module as supporting the solar cell module for mounting the solar cell unit on an oblique roof (See col. 1 line 4 to col. 2 line 52); a drain channel (formed by back portion 27, wing 29 and back side of U-shaped portion 25) provided along an edge (or along the side of framing piece 22) of the module frame outside the module frame, wherein the solar cell module has a rectangular shape and the module frame includes two horizontal frame portions (framing pieces 24 and 23) provided parallel to each other to be disposed on a roof ridge side and on an eave side, respectively, when the solar cell unit is mounted on the oblique roof, and a first side frame portion (frame piece 22 in Figure 2, or frame piece 61 in Figure 6A) and a second side frame portion (frame piece 21 in Figure 2, or frame piece 60 in Figure 6A) respectively extending from opposite ends of one of the horizontal frame portions to opposite ends of one of the horizontal frame portions to opposite ends of the other horizontal frame portion; the drain channel is provided along an outer side of the first side frame portion and having a channel bottom (back portion 27) and opposite side walls (wing 29 and back side of U-shaped portion 25); the second side frame portion has a planar projection (horizontal back portion of frame piece 21) projecting horizontally outward from an entire upper edge of the second side frame portion; and the projection is located at a higher level than the side walls of the drain channel.

With respect to claim 3, as seen in Figure 2, Tourneux teaches the drain channel has a rib (28) projecting upward from a bottom of the drain channel and extending longitudinally of the drain channel.

With respect to claim 7, as seen in Figure 2, Tourneux teaches the projection (back section of frame portion 21) has a rib (protrusion at the middle) projecting downward from a rear surface of the projection and extending along the second side frame portion (frame portion 21) for dripping rainwater flowing along the rear surface of the projection. (See col. 3 lines

With respect to claim 9, as seen in Figure 6A, Tourneux further teaches a planar auxiliary projection (65a) projecting horizontally outward from an entire upper edge of the first side frame portion (or frame piece 61).

With respect to claim 16, as seen in Figures 2 and 6A, Tourneux teaches the drain channel has a rib (28 in Figure 2, or middle protrusion from the frame piece 61) projecting upward from a bottom of the drain channel and extending longitudinally of the drain channel.

With respect to claim 18, as seen in Figure 2 and 6A, Tourneux teaches the projection (back section of frame piece 21 or 60) has a rib (protrusion at the middle) projecting downward from a rear surface of the projection and extending along the second side frame piece (frame piece 21 or 61) for dripping rainwater flowing along the rear surface of the projection.

The difference between Tourneux and instant claims is the requirement of the width of the drain channel is greater than the width of the projection, a barrier plate which closes one end of the drain channel located on the roof ridge side.

Bonn teaches a barrier plate (or stop edge 5) which closes one end of the drain channel located on the roof ridge side. (See Abstract and the Figure on the front pate).

It would have been obvious to one skilled in the art at the time the invention was made to modify the solar cell unit of Tourneux by incorporating a barrier plate (or stop edge) as taught by Bonn, because Bon teaches that it would block off or stop water running backward (See the Abstract of Bonn).

With respect to claim 6, Tourneux teaches the drain channel (including bottom portion 27, wing 29 and the back side of U-shape portion 25) is used to direct rain water (See Figures 1-2, col. 3 line 11 to col. 4 line 43, claim 1). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to recognize that the width of the drain channel can be greater than the projection because the relative dimensions would not perform differently than the prior device, the claimed structure was not patentably distinct from the prior art device. In *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. Denied, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. The choice of how wide the projection relative to the width of the drain channel would not significantly alter the performance of the claimed drain channel.

8. Claims 8, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tourneux in view of Bonn and further in view of Kloke (US Patent 4621472)

Regarding claim 8, as seen in Figures 1-8, Tourneux teaches a solar cell unit comprising a solar cell module (including solar cells 11 and laminate 12 as seen in Figure 1, or panels 41 and 42 as seen in Figure 4); a module frame (including frame pieces 21, 22, 23 and 24) provided around the solar cell module as supporting the solar cell module for mounting the solar cell unit on an oblique roof (See col. 1 line 4 to col. 2 line 57); a drain channel (including back portion 27, wing 29 and the back side of U-shaped portion 25) and provided along an edge of the module frame outside the module frame wherein the solar cell module has a rectangular shape and the module frame includes two horizontal frame portions (frame pieces 23 and 24) parallel to each other to be disposed on a roof ridge side and on an eave side, respectively, when the solar cell unit is mounted on the oblique roof, and a first side frame portion (frame piece 22) and a second side frame portion (frame piece 21) respectively extending from opposite ends of one of the horizontal frame portions to opposite ends of the other horizontal frame portion; and the drain channel is provided along an outer side of the first side frame portion, wherein the drain channel includes a channel bottom (back portion 27 of frame piece 22) and opposite side walls (wing 29 and the back side of U-shaped portion 25); the second side frame portion (frame piece 21) has a planar projection (back side of frame piece 21) projecting horizontally outward from an entire upper edge of the second side frame portion; and the projection is located at a higher level than the side walls of the drain channel.

The difference between Tourneux and instant claims is the requirement of an auxiliary drain channel projecting under the module and extending along an inner side

Art Unit: 1795

of the first side frame portion, and a barrier plate which closes one end of the drain channel located on the roof ridge side.

Kloke teaches a mounting structure to support panel (32) for collecting solar energy (See col. 1 lines 9-54), wherein the structure includes a condensation channels 79 and 80 (or drain channels) projecting from the downwardly extending back frame 81 or 82 under the panel and extending along an inner side of the frame. (See Figure 5, col. 8 lines 8-14)

Bonn teaches a barrier plate (or stop edge 5) which closes one end of the drain channel located on the roof ridge side. (See Abstract and the Figure on the front pate).

It would have been obvious to one skilled in the art at the time the invention was made to modify the solar cell unit of Tourneux by incorporating a barrier plate (or stop edge) as taught by Bonn, because Bon teaches that it would block off or stop wawter running backward (See the Abstract of Bonn). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate an auxiliary drain channel (or condensation channels) projecting under the module and extending along an inner side of the frame as taught by Kloke into the solar cell units of Tourneux, because Kloke teaches that the condensation channels are useful in trapping any moisture condensed on the surfaces of the support structure (such as purlins or batten) and of the glass panels. (See col. 8 lines 8-14). Because Tourneux teaches the frame pieces can vary in height by extending the back side of the U-shaped portion upwardly or downwardly as seen in Figures 3, 5B, 6B and because both Tourneux and Kloke are concerned with forming a supporting structure (or framing) for solar energy

Art Unit: 1795

collecting panels (such as glass panels 32 in Klope and laminated solar panels 11 or 41, 42 in Tourneux), one would have reasonable expectation of success from the combination.

Regarding claim 13, as seen in Figure 2, Tourneux teaches the drain channel has a rib (28) projecting upward from a bottom of the drain channel and extending longitudinally of the drain channel.

Regarding claim 15, as seen in Figure 2, Tourneux teaches the projection (back section of frame portion 21) has a rib (protrusion at the middle) projecting downward from a rear surface of the projection and extending along the second side frame portion (frame portion 21) for dripping rainwater flowing along the rear surface of the projection.

9. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tourneux (US Patent 4336413).

Regarding claim 19, as seen in Figures 1-2, Tourneux teaches a solar cell unit comprising a solar cell module (including solar cells 11 and laminate 12); a module frame (including frame pieces 21, 22, 23 and 24) provided around the solar cell module as supporting the solar cell module for mounting the solar cell unit on an oblique roof (See col. 1 line 4 to col. 2 line 57), wherein the module frame comprises a first side frame portion (frame piece 22) and a second side frame portion (frame piece 21) extending parallel to one another and being spaced apart in a lateral direction as seen in Figure 1; a drain channel (including a back portion 27 of frame piece 22, wing 29 and

Art Unit: 1795

the back side of U-shaped portion 25) provided along an edge of the first side frame portion; a planar projection (the back side of frame piece 21) projecting horizontally outward from an upper edge of the second side frame portion (frame piece 21); at least one drain trough-defining rib (wing 28) extending upwardly from the drain channel; at least one drip rib (middle protrusion from the back side of frame piece 21) from the planar projection (or the back side of frame piece 21). As seen in Figures 1-11, Tourneux shows there are plenty of spaces for the projections to move around. Tourneux also teaches that there is considerable place is left so that expansion of the elements and some deformation of the frame cannot produce any appreciable strain on the panels (See col. 4 lines 54-59) and such arrangement offers the advantage of very flexible adjustment to the support and number of panels (See col. 6 line 58 to col. 7 line 3). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to recognize that an extent of the rib extending downwardly from the planar projection facilitates adjustable positioning of the solar cell unit in the lateral direction without interference with the rib from drain channel of an adjacent solar cell unit.

Regarding claim 20, as seen in Figures 1-2, Tourneux teaches method for mounting a solar cell units. Each solar cell unit comprises a solar cell module (including solar cells 11 and laminate 12); a module frame (including frame pieces 21, 22, 23 and 24) provided around the solar cell module as supporting the solar cell module for mounting the solar cell unit on an oblique roof (See col. 1 line 4 to col. 2 line 57), wherein the module frame comprises a first side frame portion (frame piece 22) and a

Art Unit: 1795

second side frame portion(frame piece 21) extending parallel to one another and being spaced apart in a lateral direction as seen in Figure 1; a drain channel (including a back portion 27 of frame piece 22, wing 29 and the back side of U-shaped portion 25) provided along an edge of the first side frame portion; a planar projection (the back side of frame piece 21) projecting horizontally outward from an upper edge of the second side frame portion (frame piece 21); at least one drain trough-defining rib (wing 28) extending upwardly from the drain channel; at least one drip rib (middle protrusion from the back side of frame piece 21) from the planar projection (or the back side of frame piece 21). As seen in Figure 4, Tourneux teaches the step of positioning a first solar cell unit (such as the unit including panel 41) adjacent to a second solar cell unit (such as the unit including panel 42) in a lateral direction. As seen in Figures 1-11, Tourneux shows there are plenty of spaces for the projections to move around. Tourneux also teaches that there is considerable place is left so that expansion of the elements and some deformation of the frame cannot produce any appreciable strain on the panels (See col. 4 lines 54-59) and such arrangement offers the advantage of very flexible adjustment to the support and number of panels (See col. 6 line 58 to col. 7 line 3). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjusting a degree of overlap of the planar projection of the first solar cell unit over the drain channel of the second solar cell unit, an extent of the rib extending downwardly from the planar projection of the first solar cell unit facilitating from adjustable positioning of the solar cell unit in the lateral direction without interference with a rib of an adjacent solar cell unit.

Response to Arguments

Applicant's arguments with respect to claims 3, 4, 6-9 and 13-20 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues that the combination of Tourneux in view of Kloke is improper because Kloke does not pertain to a solar cell and the drain channels 79, 80 are formed on members which are directly analogous to the first side frame portion. However, Applicant's argument is not deemed to be persuasive. Both both Tourneux and Kloke are concerned with forming a supporting structure (or framing) for solar energy collecting panels (such as glass panels 32 in Kloke and laminated solar panels 11 or 41, 42 in Tourneux), one would have reasonable expectation of success from the combination. Kloke teaches the drain channels 79 and 80 projecting from the downwardly extending back frame 81 or 82 under the panel 32 and extending along an inner side of the frame (toward the panel 32) with the purpose of trapping moisture condensed on the surface of the support structure. Therefore it would have been obvious to one skilled in the art to modify the unit of Tourneux by incorporating drains channels projecting from the downwardly extending back frame to the unit Tourneux because Kloke teaches that these channels are useful in trapping any moisture condensed on the surfaces of the support structure.

Applicant also argues Tourneux does not teach that the extent of the rib facilitates adjustable positioning of the solar cell unit in the lateral direction without interference with a rib of an adjacent solar cell unit as the wings piece 22 and 21 of

Tourneux appear to interlock in such a way to limit lateral movement of the panel. The Examiner respectfully disagrees. First of all the above limitation has no support in the originally filed disclosure. Secondly, the upward and downward projections of pieces 21 and 22 of Tourneux can act as a guide in installing the solar panels, therefore the extent of the rib facilitate adjustable positioning of the solar cell unit in the lateral direction. Furthermore, Tourneux also shows there are spaces between projections (such as 29 and 29), therefore the lateral adjustment in the spaces between projections is not interfered.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 1795

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THANH-TRUC TRINH whose telephone number is (571)272-6594. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nam X Nguyen/
Supervisory Patent Examiner, Art Unit 1753

TT
9/30/2008